CHAPTER 5. OPERATIONAL PLANNING AND EXECUTION

Whether performed at the national or the battalion/squadron level, the key functions of planning are—

- Lead to a plan that directs and coordinates action.
- Develop a shared situational awareness.
- Generate expectations about how actions will evolve and how they will affect the desired outcome.
- Support the exercise of initiative.
- Shape the thinking of planners.

5001. MARINE CORPS PLANNING PROCESS

The Marine Corps Planning Process (MCPP) helps organize the thought processes of a commander and the staff throughout the planning and execution of military operations. The MCPP focuses on the threat and is based on the Marine Corps warfighting philosophy of maneuver warfare. It capitalizes on the principle of unity of effort and supports the establishment and maintenance of tempo. The MCPP steps can be as detailed or as abbreviated as time, staff resources, experience, and the situation permit. The command and staff actions at all echelons must apply the MCPP. From the Marine Corps component headquarters to the battalion/squadron level, commanders and staff members must master the MCPP to be full participants in integrated planning. Additionally, the MCPP complements deliberate or crisis action planning (CAP) as outlined in the Joint Operation Planning and Execution System (JOPES).

The MCPP establishes procedures for analyzing a mission, developing and analyzing courses of action (COAs) against the threat, comparing friendly COAs against the commander's criteria and each other, selecting a COA, and preparing an (OPORD) for execution. The MCPP organizes the planning process into six steps (see figure 5-1). It provides the commander and the commander's staff a means to organize their planning activities and transmit the plan to subordinates and subordinate commands. Through this process, all MAGTF levels of command can begin their planning effort with a common understanding of the mission and commander's guidance. The six integrated steps of this process are:

Figure 5-1. The Marine Corps Planning Process.

Mission Analysis

Mission analysis is the first step in planning. Mission analysis reviews and analyzes orders, guidance, and other information provided by higher headquarters and produces a unit mission statement. Mission analysis drives the MCPP.

COA Development

During COA development, the planners use the mission statement including higher headquarters tasking and intent, commander's intent, and commander's planning guidance to develop the COA(s). Each prospective COA is

examined to ensure that it is suitable, feasible, distinguishable, acceptable, and complete with respect to the current and anticipated situation, the mission, and the commander's intent. In accordance with the commander's guidance, approved COAs are further developed in greater detail.

COA Wargaming

COA wargaming involves a detailed assessment of each COA as it pertains to the enemy and the battlespace. Each friendly COA is war-gamed against selected threat COAs. COA wargaming assists the planners in identifying strengths and weaknesses, associated risks, and asset shortfalls for each friendly COA. COA wargaming identifies branches and potential sequels requiring additional planning. COA wargaming provides the most reliable basis for understanding and improving each COA.

COA Comparison and Decision

In COA comparison and decision, the commander evaluates all friendly COAs—against established criteria, then against each other—and selects the COA deemed most likely to accomplish the mission.

Orders Development

During orders development, the staff takes the commander's COA decision, mission statement, commander's intent, and guidance, and develops orders to direct the actions of the unit. Orders serve as the principal means where the commander expresses decision, intent, and guidance.

Transition

Transition is an orderly handover of a plan or order as it is passed to those tasked with execution of the operation. It provides those who will execute the plan or order with the situational awareness and rationale for key decisions necessary to ensure there is a coherent shift from planning to execution.

Interactions among various planning steps allow a concurrent, coordinated effort that maintains flexibility, makes efficient use of time available, and facilitates continuous information sharing. Appendix F captures major IMINT planning considerations and activities in support of MAGTF operations, cross-referencing each with the MCPP step and major staff planning activities that they are most associated.

5002. JOINT PLANNING PROCESSES

Joint Deliberate Planning

The deliberate planning process is used by the joint staff and CINCs to develop plans in support of national strategy. The Joint Strategic Capabilities Plan (JSCP) apportions forces and resources for use during deliberate planning by the combatant commanders and their service component commanders. Figure 5-2 illustrates how the MCPP fits within and supports the joint deliberate planning process.

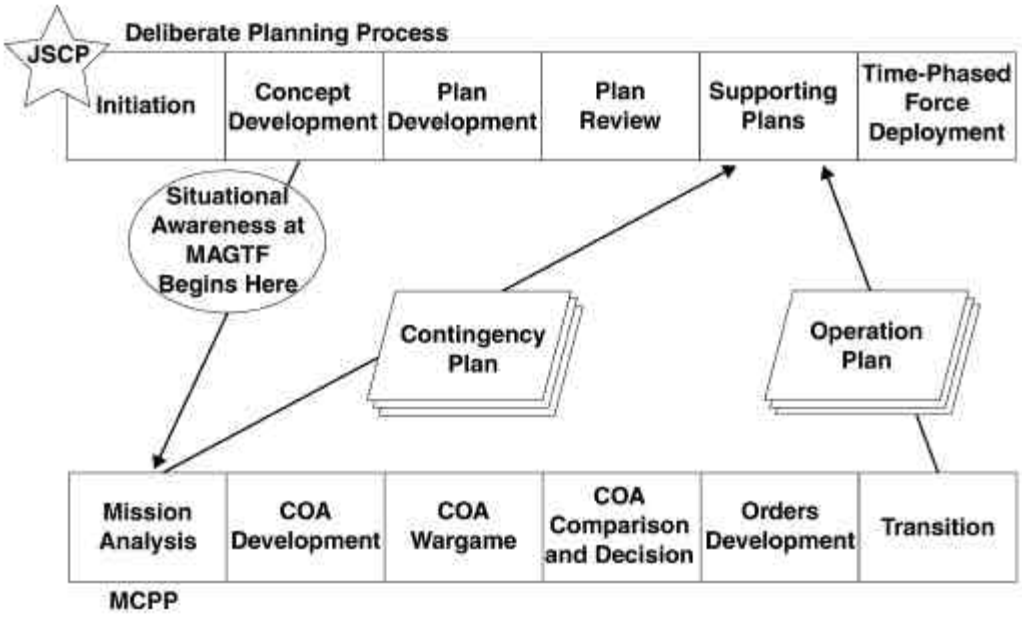


Figure 5-2. The MCPP and the Joint Deliberate Planning Process.

Crisis Action Planning

CAP is conducted in response to crises where national interests are threatened and a military response is being considered. In CAP, the time available for planning at the national level may be reduced to as little as a few days. CAP procedures promote the logical, rapid flow of information and the timely preparation of campaign plans or OPORDs. Figure 5-3 illustrates how the MCPP fits within and supports the joint crisis action planning process.

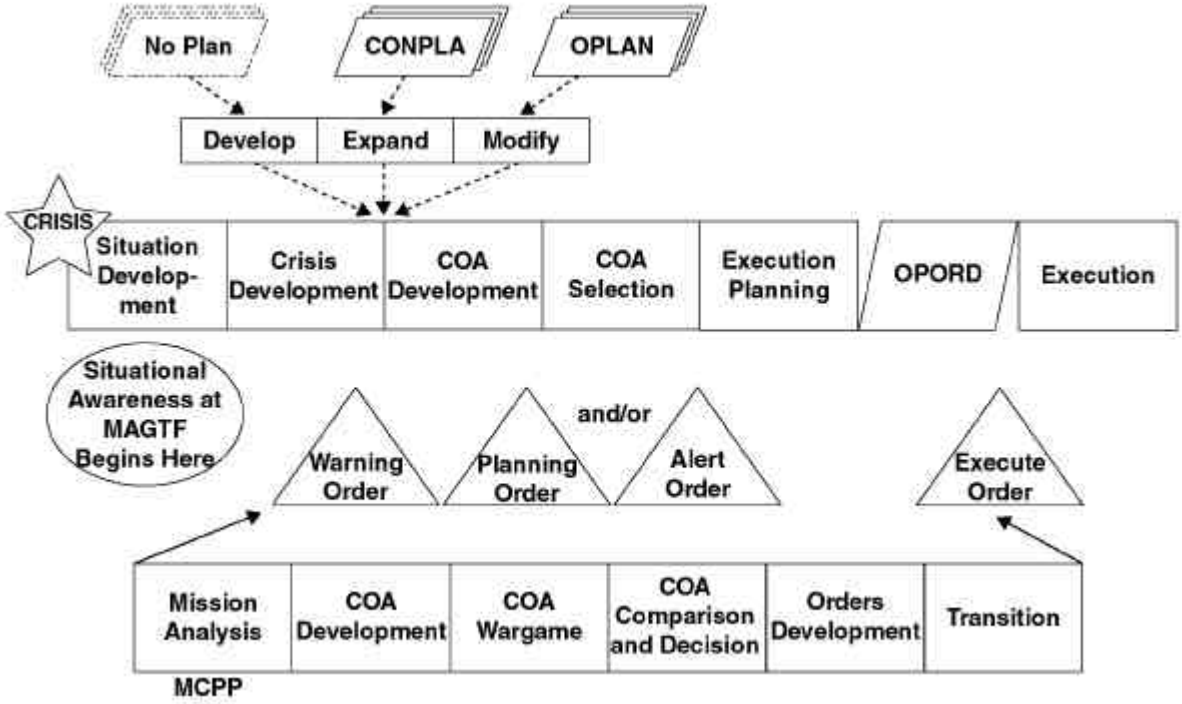


Figure 5-3. The MCPP and the Joint Crisis Action Planning Process.

5003. PLANNING AND THE INTELLIGENCE CYCLE

See chapter 3 of MCWP 2-1, *Intelligence Operations*, for comprehensive discussion of each phase of the intelligence cycle and the overall conduct of intelligence planning and direction.

IMINT planning and execution is conducted concurrent with six phases of the intelligence cycle. The first phase is planning and direction. It consists of those activities that identify pertinent IRs and provides the means for satisfying those requirements. Intelligence planning and direction is a continuous function and a command responsibility. The commander directs the intelligence effort; the intelligence officer manages this effort for the commander based on the intent, designation of PIRs, and specific guidance provided during the planning process. Planning and direction functions include—

- Requirements development.
- Requirements management.
- Collection management.
- Production management.
- Dissemination management.
- Planning the intelligence support system.

The intelligence cycle is a procedural framework for the development of mission-focused intelligence support. It is not an end, nor should it be viewed as a rigid set of procedures carried out in an identical manner on all occasions. The commander and the intelligence officer must consider each IR individually and apply the intelligence cycle in a manner that develops the required intelligence in the most effective way.

The application of the intelligence cycle will vary with the phase of the planning cycle. In theory, a unique iteration of the intelligence cycle is carried out for each individual IR. In practice, particularly during the planning phase, IRs are grouped together and satisfied through a single, concurrent intelligence development process that concurrently addresses IMINT requirements. During the planning phase, intelligence development is generally carried out through two major iterations of the intelligence cycle. The first primarily supports decision planning. Completion of this iteration of the intelligence cycle results in the preparation and use of basic intelligence and IMINT products (intelligence estimates, supporting studies, and IPB analysis) that describe the battlespace and threat. These products form the basis for development and selection of MAGTF COAs. The second iteration of the intelligence cycle supports execution planning. It is an outgrowth of the selection of the COA and formulation of the concept of operations; the implementation of the intelligence collection, production and dissemination plan; refinement of IPB analysis, and the generation of mission-specific multi-discipline intelligence operations and intelligence products and which are integrated with the concept of operations to support mission execution. During execution, IRs are satisfied on a more individualized basis. New IRs are usually generated in response to a specific operational need. Each IR is unique and must be satisfied in a timely manner to facilitate rapid decisionmaking and the generation or maintenance of tempo (see figure 5-4).

5004. PLANNING RESPONSIBILITIES

Intelligence Officer

Primary staff responsibility for IMINT operations planning lies with the G-2/S-2. Specific responsibilities are—

- Preparation of integrated, multi-discipline intelligence and reconnaissance operations and supporting IMINT plans, orders, annexes, and appendices.
- Coordination with the G-3/S-3 to ensure that the planned IMINT effort supports the concept of operations and scheme of maneuver, and ensures effective prioritization and integration of IMINT operations.
- Coordination with the G-6/S-6 officer for CIS support to the IMINT elements, including circuits, network access, frequency assignment, equipment, and call signs.
- Liaison with IMINT agencies and units external to the MAGTF.
- Coordination with the G-4/S-4 to ensure adequate logistics support of IMINT elements (in particular, the transportation and maintenance of IMINT units' unique and sizable equipment).

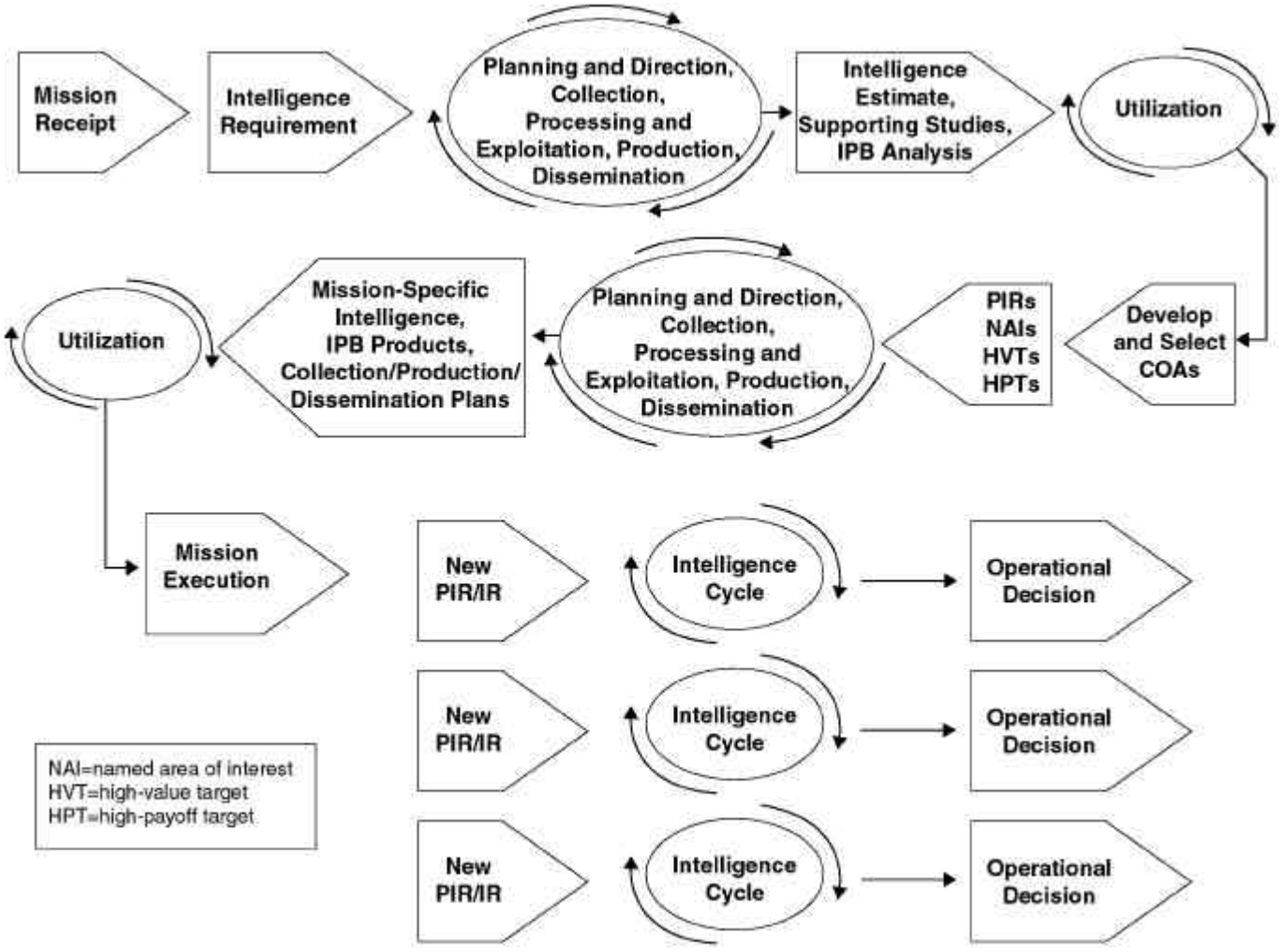


Figure 5-4. Application of the Intelligence Cycle.

Intelligence Battalion Commander/Detachment OIC

The intel bn commander/detachment OIC is responsible to the G-2/S-2 (or the MAGTF intelligence operations officer) for the planning, direction, and execution of MAGTF IMINT operations. Specific duties include—

- Advise the G-2/S-2 on IMINT employment and its integration with other services, JTF, theater, and national IMINT operations.
- Prepare MAGTF IMINT plans and orders in conjunction with other intelligence section staff officers and key intel bn subordinates (e.g., IIP platoon commander).
- Plan, supervise, and assist IMINT collection requirements and taskings for MAGTF operations in conjunction with the collection management officer.
- Coordinate the movement, operation, and reporting of IMINT units in coordination with the SARC OIC and the G-3/S-3.
- Coordinate MAGTF all-source fusion center (AFC) analyst exchanges with IMINT analysts, and the integration of imagery and IMINT products with all-source intelligence production in conjunction with MAGTF AFC OIC.
- Plan for the timely reporting of IMINT-derived intelligence to MAGTF and external elements and the rapid handling of perishable IMINT information in coordination with the dissemination officer.
- Plan and coordinate IMINT communications paths and information systems management and operations in conjunction with the G-6/S-6.

5005. GENERAL PLANNING CONSIDERATIONS

Principles

Provide Imagery and IMINT to Meet Requirements

The IMINT plan must ensure imagery data is collected, processed, and reported to satisfy the IRs set forth in the commander's guidance and collection plan. Particular attention must be paid to the timeliness and formats of the data provided.

IMINT Operations Must be Integrated with Operations

The IMINT plan must take into account the location and activities of the supported units. Planned missions must be scheduled where and when they can best collect sensor data, and C2 and CIS arrangements coordinated ensuring imagery data and IMINT reports are reported to the supported units. Enemy activity may be anticipated at certain phases of the operation; IMINT operations and analytical personnel must have a situational awareness of both intelligence estimates and ongoing operations to focus their efforts at a particular time and area. Finally, the requirement for timeliness in processing and reporting may vary depending upon the stage of the operation; personnel must be aware of current timeliness requirements as well as the availability of CIS resources with all supported commands.

Provide Redundancy in the Intelligence Plan

The IMINT plan must be integrated with other intelligence and reconnaissance operations to ensure that the needed data can still be acquired

even if a planned imagery mission is canceled or if equipment malfunctions occur. The ability to provide this redundancy is dependent upon a number of factors, primarily the number of imagery missions available, capability of other intelligence resources to acquire the information needed, and the availability of production resources.

Make Full Use of All IMINT Resources

While some imagery collection resources may be held in reserve, most such units and systems can fulfill multiple missions and thus will likely be employed (e.g., ATARS). Close coordination and integration of operations and intelligence activities will aid with identifying and prioritizing such multi-purpose missions. IMINT production resources are not held in reserve.

Concept of Operations

The IMINT effort must support and adapt to the MAGTF commander's intent, concepts of intelligence and operations, and the supporting scheme of maneuver. Key questions to answer include—

- What is the MAGTF AO and the area of interest?
- What is the MAGTF concept of operations, task organization, main and supporting efforts?
- What are the standing PIRs and IRs? Which have been tasked to supporting IMINT units? What specific information is the commander most interested in (e.g., enemy ground operations, enemy air operations, target BDA, friendly force protection, or enemy future intentions)?
- What is the concept of MAGTF fires support? How will MAGTF target development and target intelligence be conducted? What are the specific imagery needs in support of these?
- What are the IMINT and intelligence concepts of operations of other JTF, component, and theater resources? What is the task-organization and command/support relationships for all MAGTF intelligence and reconnaissance units?
- How can Navy IMINT assets and other services, JTF, theater, and national IMINT assets be employed and integrated to support MAGTF operations?

Terrain

All IMINT collection systems require LOS with the target area to be effective.

Terrain factors have a significant impact on IMINT operations, particularly on the ability of IMINT sensors to see through vegetation, requirements for line-of-sight (LOS) communications, and employment considerations in IMINT collection operations and for the time-sensitive dissemination of collected imagery and IMINT products via MAGTF CIS. Accordingly, IMINT planners must assess the effects of mountains, defilade, vegetation, and other potential terrain obstacles on planned IMINT operations.

Weather

Weather is a key limiting factor for IMINT operations. Bad weather degrades the identification and location of targets. Weather can also limit the type of imagery collection capabilities that may be employed. Finally, low

ceilings and poor visibility decreases visual reconnaissance effectiveness as well as the resolution of photographic systems.

Precipitation

Visible moisture degrades optical and visual reconnaissance systems. A UAV is not an all-weather aircraft. Exposure to rain, ice, and snow can severely damage or destroy a UAV.

Wind

UAVs, due to their lighter weight, are significantly more affected by wind than manned aircraft. The Pioneer UAV has a crosswind limitation of 16 knots for takeoff and landing and a total wind component limitation of 30 knots in flight. The UAV currently under development will have a crosswind limitation of 25 knots and a total wind component limitation of 30 knots in flight.

Clouds, Haze, and Smoke

In addition to affecting an aircrew's ability to conduct visual reconnaissance, these conditions also affect EO and infrared systems in manned aircraft and UAVs.

Daylight, Sun Angles, and Shadows

The angle of the sun affects visual, TV, and FLIR observation in varying degrees. The quality of FLIR imaging decreases as the sun rises and reaches a point where a target can be seen visually. At this point the target cannot be detected by a FLIR. Prior to sunset and just after sunrise, long shadows are cast by large terrain features and can obscure objects in their path. The ideal time to take photographs or observe a target is mid-morning or mid-afternoon. During these periods, shadows are cast long enough to add definition and dimension to a target.

Threat

General

Detailed threat analysis must be conducted to determine which IMINT sensors and platforms can be employed effectively against a given enemy and how to employ limited MAGTF and external resources to obtain the best possible IMINT. Imagery operations can be hampered by the enemy's air defense capability and its camouflage, cover, concealment, and deception activities.

Aviation-related

Enemy air defenses have a direct effect on aerial imagery collection missions. Significant antiaircraft artillery (AAA) and surface-to-air missile (SAM) threats may degrade visual reconnaissance due to a need for aircraft to stay beyond threat air defense ranges. IMINT planners must assess threat

air defense and air-to-air threats when evaluating risk and determining routes. Because of a UAV's slow speed, AAA is its greatest threat, while SAMs pose greater risks to MAGTF fixed-wing aircraft. Finally, threat electronic warfare capabilities must be determined to assess their effects on UAV and manned imagery platforms radio uplinks and imagery downlinks.

5006. SPECIFIC PLANNING CONSIDERATIONS AND EXECUTION ACTIVITIES

Planning and Direction

Objectives

IMINT planning is a continuous function that requires close interaction between the G-2/S-2 and IMINT unit planners. Key objectives include—

- Identify IMINT requirements.
- Prepare IMINT operations plan.
- Plan and establish the IMINT support system (CIS, logistics, etc.).
- Issue orders/tasking to IMINT units.
- Supervise and coordinate IMINT operations.

Key Considerations

Effective IMINT planning and execution require close coordination, liaison, and integration with all-source intelligence elements. IMINT collection management often will be driven by tip-offs (or cueing) from SIGINT, HUMINT, and other sources of intelligence. Also, fusion of IMINT with other intelligence ultimately drives the conduct of future IMINT operations and the development of IMINT products. Related concerns include—

- **Split-basing**—IMINT operations, particularly for the MCISU and the IIPs, favorably lend themselves to using a split-basing concept of operations and should be considered for many deployment situations. CIS connectivity, bandwidth availability, equipment and combat service support requirements are key factors in determining the IMINT concept of operations that must be considered.
- **Liaison elements**—Identifying, preparing, and locating IMINT or all-source intelligence liaison elements to support MAGTF IMINT operations is a critical early planning action. Placing IMINT liaison elements where they can coordinate operational planning and providing them necessary CIS support are the keys (e.g., IMINT liaisons with JTF collection and ATO planners).
- **Physical demands**—IMINT planners must take into account the strenuous mental and physical demands (especially visual) on imagery analysts during sustained operations, particularly when planning watch schedules for imagery analysts performing detailed imagery exploitation tasks.

At the time of publication, the MCISU's deployable status is currently under review.

Liaison requirements—IMINT liaison teams will be small in number due to limited availability of imagery personnel.

Additional IMINT planning considerations for specific type MAGTF operations include—

- **Amphibious operations**—Multispectral imagery, hyperspectral imagery, and other new special imagery capabilities can provide unique support to amphibious operations, such as in the detection of sandbars and obstacles in the water.
- **Peacekeeping and humanitarian assistance operations**—National imagery usually provides the initial baseline to support planning for peacekeeping and humanitarian assistance operations. The typical multi-national nature of these operations, however, leads to critical planning and dissemination requirements. National imagery is not releasable to most multi-national partners without prior approval from NIMA. Each type imagery has specific requirements (e.g., waivers are often given for EO imagery dissemination).

Planning and direction are integral to all phases of the intelligence cycle.

Basic IMINT Planning Process. There are eight steps in the basic IMINT planning and execution process.

- **Planning.** The first step to receiving IMINT support is to determine that an IR exists. Carefully determine your exact needs-to include key collection, production, and dissemination requirements-so priorities can be accurately determined, resources are not overwhelmed, and timely support is received.
- **Requesting.** The most important first step of any request is to clearly articulate your IRs (to include desired imagery and other specific IMINT support). Stating as IR should include what your mission is and how the product you seek will help you get the job done.
- **Validating.** On-hand intelligence and imagery is reviewed to determine if the IR can be immediately answered. If not, it is then checked against previously validated IRs and ongoing/planned intelligence operations to avoid unnecessary duplication. Finally, it will be checked against the capabilities of the unit's and supporting intelligence assets. If then validated, a priority will be assigned to it and associated ICRs, IPRs, and IDRs developed and prioritized.
- **Plans and Taskings.** A determination will also be made as to whether organic or external intelligence operations will be tasked to satisfy the IR. If collection is required, CMDO will determine the best intelligence asset suited to perform the mission. Concurrently, CMDO will develop plans and taskings to ensure eventual dissemination requirements can be achieved, while the P&A cell OIC will develop necessary production plans and tasking. If organic intelligence resources will be used, appropriate orders are issued. If external support will be required, the IR will be submitted to higher headquarters or supporting organizations.
- **Collecting.** The validated ICRs and IPRs will be used to ensure the most effective type of imagery is collected to satisfy the overall IRs. The image can be recorded hardcopy or softcopy single frame or continuous (video), depending on the actual sensor. Capabilities and limitations of each imagery collection element (e.g, maximum and optimal ranges), the time

the collection must occur, and the weather will influence the nature of collection operations.

- **Exploiting.** For IMINT exploitation, requirements are defined in terms of three phases of analysis, production, and reporting. Each phase represents a greater degree of analysis and a longer period of time available to accomplish the exploitation and production.
  - Phase One is the rapid exploitation of newly acquired imagery and reporting of imagery-derived intelligence and intelligence information within a specified time from receipt of imagery. This phase satisfies priority requirements of immediate need and/or identifies changes or activity of immediate significance.
  - Phase Two is the detailed exploitation of newly acquired imagery and the reporting of imagery-derived intelligence and intelligence information within the bounds of analytic requirements and timeliness of need. This phase provides an organized and comprehensive account of the intelligence or intelligence information extracted from newly acquired imagery and supported by other intelligence source materials as appropriate.
  - Phase Three is the indepth analysis of available imagery pertinent to an IR and the reporting of results within a specified time. This phase provides the most comprehensive, indepth analysis of a target or topic in response to IRs, using imagery as the primary data source but incorporating data and intelligence from other sources as appropriate.
- **Disseminating**. Imagery and IMINT products are disseminated either as hardcopy or softcopy (e.g., digital or electronic) products. Hardcopy products will go via couriers or some type of mail system. Softcopy products may also be distributed as hardcopy products (e.g., on CDs and floppy/zip disks) or electronically via the MAGTF TDN. The requestor and the supporting intelligence officers, with assistance from units' G-6/S-6s, must ensure that the requested product can be transmitted over available supporting CIS. The length of time required to receive a product electronically depends on the size of the file. Low rates of compression (e.g., 4 to 1) allow an image to be transmitted, decompressed, recompressed, and retransmitted. Higher rates of compression generally will not allow a product to be recompressed. It is recommended that if a product will be retransmitted, a copy be made before it is decompressed. Once it is determined that a product meets the need of the command, the compressed copy can be transmitted without losing data.
- **Use.** The last step of the IMINT planning and execution process, as with the intelligence process, is the most important—effective utilization. Commanders and other imagery/IMINT users should quickly notify the intelligence officer as to how well the products answered their PIRs and IRs. Additionally, new IRs that result from the new imagery/IMINT should be rapidly identified and action initiated to most effectively plan future operations. Finally, providing the intelligence officer and IMINT elements feedback will identify problems (e.g., product formats, missing or excessive information, etc.) and allow improvements to be quickly developed and implemented.

Collection

A variety of organic imagery collection capabilities is available to a MAGTF (see figure 5-5). The following planning considerations are critical to effective direction and employment of these resources.

General Imagery Collection Planning Considerations

Imagery collection resources have excellent capabilities to locate and identify major threat forces, moving vehicles, weapons systems, structures and other topographic features contrasting with their surroundings. Conversely, it can be difficult to locate small, stationary and/or well-camouflaged enemy forces blending in with their surroundings. Generally it is better to employ imagery collection resources against point targets, vice in a wide area search mode. Effective integration with other intelligence operations can cue imagery collectors against key targets, reducing the general search area and more rapidly producing useful intelligence. Some basic imagery collection planning considerations:

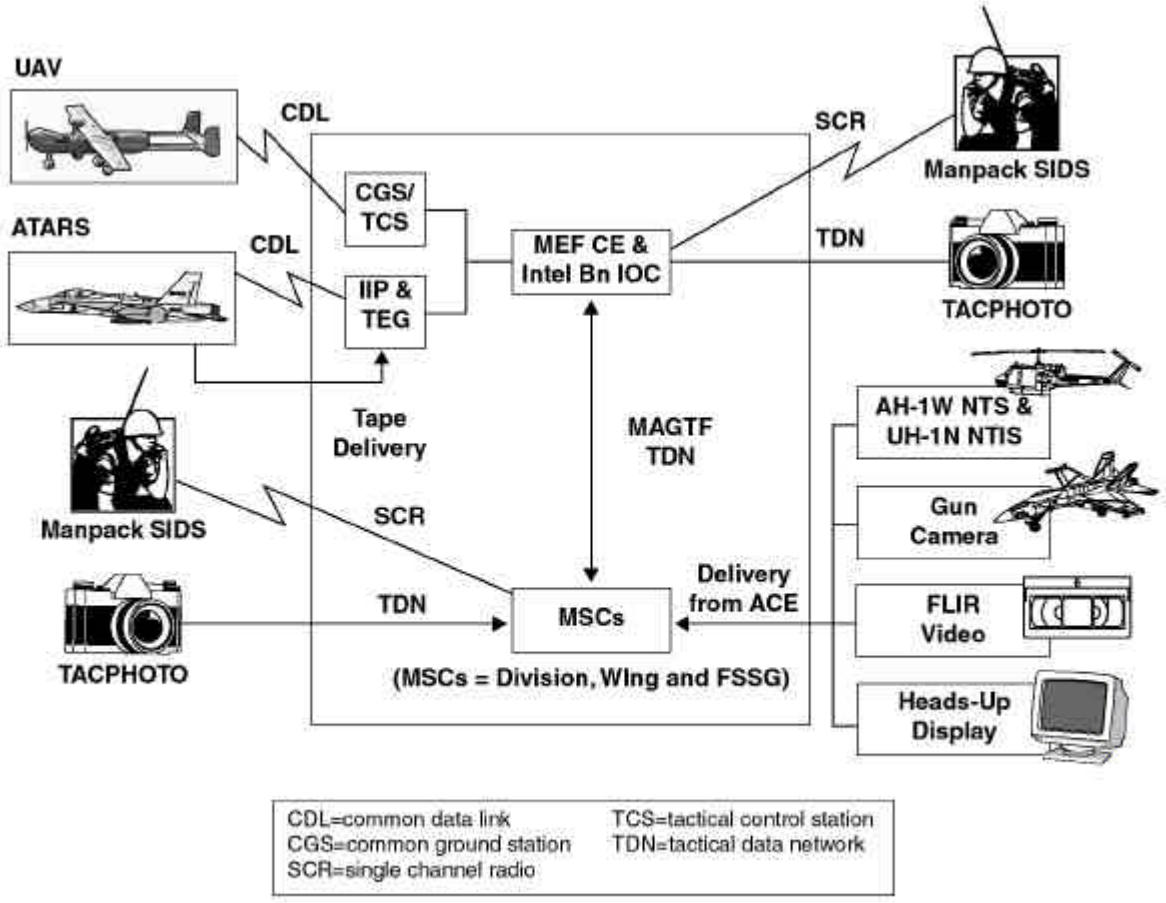


Figure 5-5. MEF Imagery Collection Capabilities.

Area Reconnaissance Imagery Collection. Area reconnaissance is the systematic and complete coverage of an area using visual and/or imaging means. Area reconnaissance is normally conducted for locating and identifying potential targets for further analysis or in support of terrain analysis. Area reconnaissance imagery is accomplished in one of two ways:

- By imaging back and forth across a predetermined area in such a way that the flight lines and individual images overlap. This provides complete stereographic coverage of all objects within the area at the expense of increased sensor utilization time.
- By adjusting focal lengths and/or altitudes to allow a lesser number of images to cover the target area. This reduces TOT as well as the processing, exploitation, and dissemination time at the expense of reduced resolution.

Types of area reconnaissance imagery missions include—

- BAC and BAS are area reconnaissance imagery collection tactics that are good for providing an overview of an entire area. During the early phases of an operation, these may be done for two intelligence purposes: providing a basis for the procurement of larger scale imagery of selected areas for subsequent detailed analysis; or to serve as a comparative baseline for determining the nature and extent of changes identified on subsequent missions. BAC and BAS should not be used to hunt for OOB information, as exploitation of these is very manpower and time intensive. During such area collection operations, the flight tracks (or routes) are planned and the image exposures adjusted so that each successive image will overlap the previous one.
- DSA missions provide focus and detail and are useful for OOB confirmation counts.

Point Reconnaissance Imagery Targets (also called pinpoint reconnaissance). Point reconnaissance imagery target is a small area. While sizes may vary, at the tactical levels (e.g., MSE and below command echelons) this area is usually not larger than one kilometer by one kilometer, while at the MAGTF CE/operational level this area will generally be of 10 nautical miles or less. Point reconnaissance missions are normally tasked to provide the highest resolution possible of a specific target to allow for detailed analysis. A command post, bridge, airfield or SAM site would be considered point targets.

Route Reconnaissance Imagery. Route reconnaissance imagery is simply imaging along specific transportation routes such as roads, railroads or waterways. This type of reconnaissance is normally conducted to determine enemy movement, to determine usability of the route, or in support of GEOINT mapping or terrain analysis requirements. This tactic is good for

LOC and maneuverability studies, but generally requires significant time for effective exploitation. Route reconnaissance imagery missions should be done as a contingency baseline, ahead of time. This coverage is typically done by one or two collectors flying at a low altitude along a specified route.

Strip Search Reconnaissance Imagery. Strip search reconnaissance missions are similar to the route reconnaissance except that the collector will fly in a straight line from one point to another or along predetermined flight paths not necessarily related to transportation routes. This type of mission is frequently conducted using oblique or side-looking sensors to monitor activity across enemy lines or demilitarized zones, while allowing the aircraft to fly over friendly territory.

Aerial imagery collectors provide the flexibility to respond rapidly to changing battlespace conditions. UAVs offer the added advantage of operating in areas of heavier enemy air defenses and providing the needed intelligence without the risk of exposure of manned aircraft. Using the results of IPB and the MAGTF's concept of operations and scheme of maneuver, intelligence imagery collection planners will generally establish detailed preplanned imagery collection routes, areas, and point targets encompassing the area of interest (AOI) to streamline intelligence and operational planning.

In addition to the intelligence planning considerations, such missions require detailed operational planning, particularly regarding their integration with other ACE operations. As all aerial imagery collection platforms are multi-purpose, close coordination between MAGTF CE imagery planners and ACE operational planners is necessary to identify, reconcile, prioritize, and integrate competing requirements for these resources. Additionally, all aerial imagery missions must be included on the ATO and coordinated with other air operations and, where pertinent, supporting arms. This is particularly critical regarding UAV operations. UAVs enter the airspace control system via the appropriate airspace control agency, normally the direct air support center (DASC). UAV controllers maintain communications with the appropriate ACE C2 agency (e.g., the DASC) during missions to receive routing, altitude, and other pertinent airspace control information.

The commander who directly tasks or controls an imagery collection mission will receive the most responsive support. The responsiveness of the mission to other commanders depends on the number of echelons through which the mission request and resulting intelligence must flow. Accordingly, when planning imagery collection operations, the advantages and disadvantages of dedicating missions to a single command (i.e., direct support) must be assessed against the MAGTF's total IRs and the current situation.

Previously acquired imagery and IMINT products should always be reviewed to see if they can satisfy IRs without need of additional imagery collection missions.

Often the intelligence acquired from an imagery collection mission (vice the actual image itself) will be all that is required to satisfy many IRs. Likewise,

dissemination challenges are generally simpler and faster when users' IRs can be satisfied without the images. Accordingly, commanders must understand the pros and cons of various imagery-related IRs to ensure optimum support.

Usually collected imagery will require additional processing and fusing with other intelligence to provide the necessary support. Depending on the situation, this may be a time-intensive task. Commanders should assess likely processing and production times and other requirements when developing IMINT plans.

Intelligence acquired from a number of imagery collectors may be disseminated directly to users with minimal additional intelligence processing and all-source intelligence analysis. Supporting dissemination plans must ensure identification of the type products likely disseminated and, the technical requirements associated with these. In the case of resources such as the UAV or J-STARS, dissemination planning includes the establishment of dedicated communications links directly between the collector and the supported unit (e.g., by assigning a UAV RRS detachment with organic communications to the supported unit's command echelon).

Types of Imagery

Vertical Imagery. Vertical imagery coverage of a target is obtained by direct overhead photography (see figure 5-6). It provides imagery of a relatively constant scale. It also allows the imagery analyst to achieve optimum results from stereovision and to accomplish the most accurate measurements. Ster-eovision is the effect obtained when overlapping photographs are viewed with the aid of special optical equipment, enabling height and slope

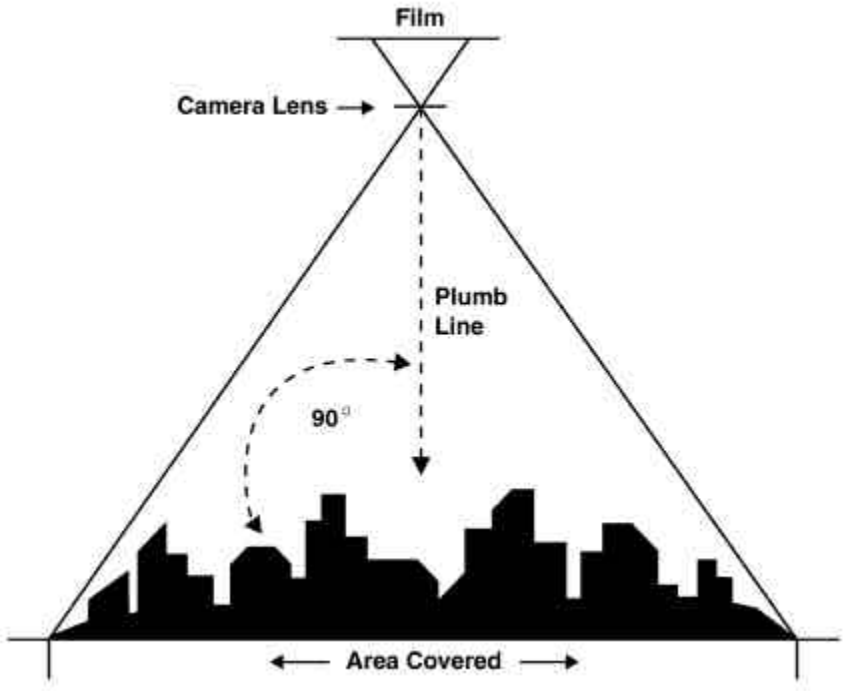


Figure 5-6. Vertical Imagery.

determinations, as well as other detail not visible to the naked eye. Figure 5-7 is an example of a vertical image.

Oblique Imagery. Oblique imagery coverage is obtained by imagery taken at an angle from the vertical. High oblique imagery includes the horizon and has a large ground coverage (see figures 5-8 and 5-9); low oblique imagery

Figure 5-7. Vertical Imagery Example.

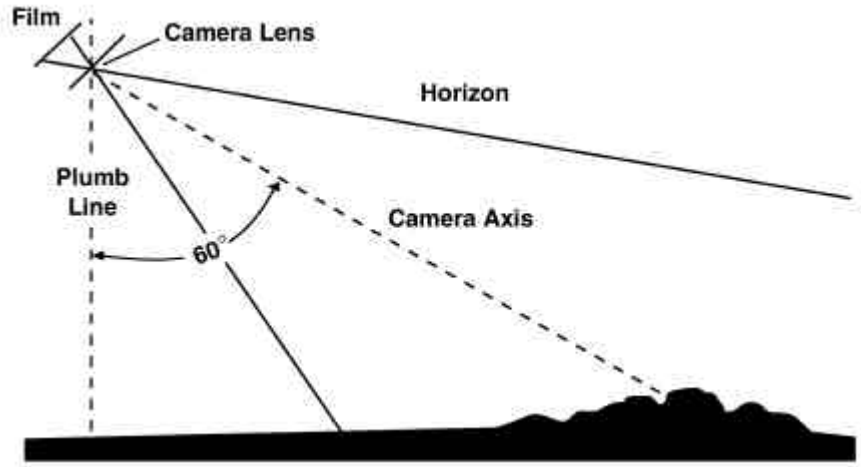


Figure 5-8. High Oblique Imagery.

Figure 5-9. High Oblique Imagery Example.

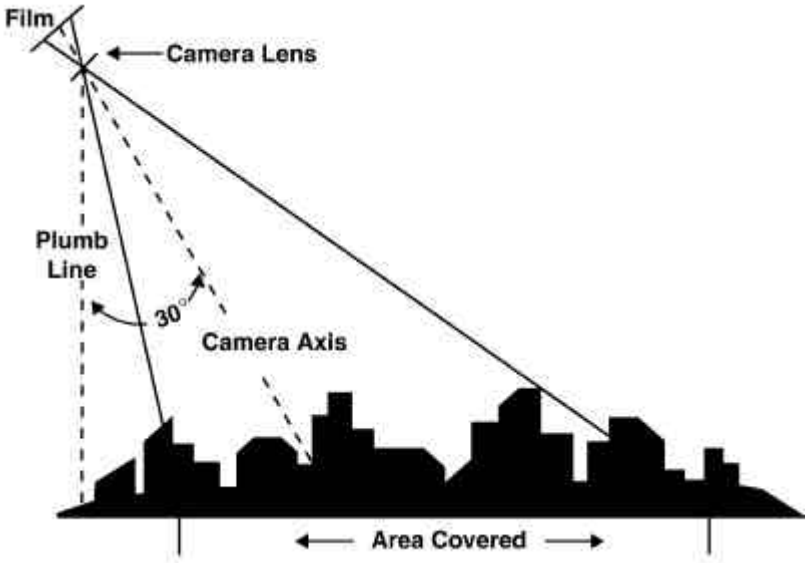


Figure 5-10. Low Oblique Imagery.

does not include the horizon and has a small ground coverage (see figures 5-10 and 5-11). Oblique imagery provides a representation of the target comparable to flying towards or parallel to it. It closely resembles a normal eye view and allows the imagery analyst to see into an area in a normal fashion. Measurements of oblique imagery are more difficult than with vertical imagery since the scale is not constant across the image, and precise subject distances cannot be determined. An operational advantage to such imagery, however, is the possible increased survivability it offers to manned and unmanned aircraft.

Figure 5-11. Low Oblique Imagery Example.

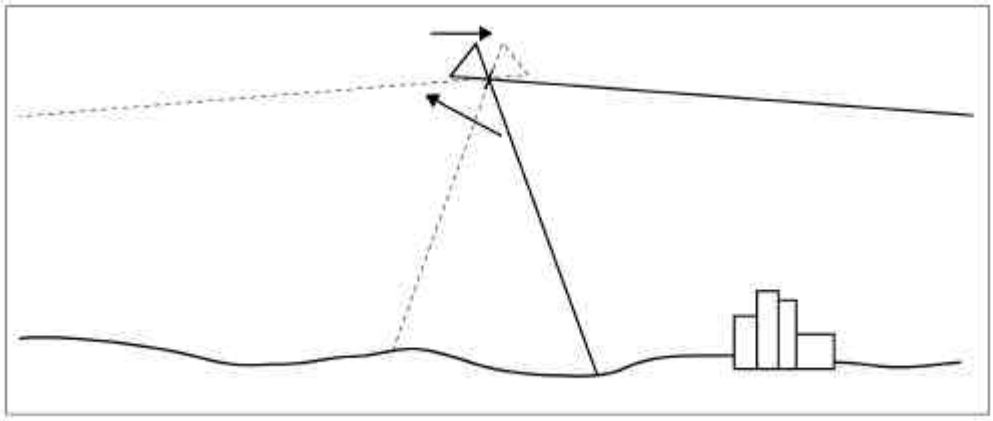


Figure 5-12. Low Panoramic Imagery.

Panoramic Imagery. Panoramic imagery scans a wide area. Generally it is categorized according to the altitude at which the mission is flown and the angle of the scan. Low panoramic imagery is taken at low altitudes and scans a wide area, including the horizon on either side of the collector's flight line (see figure 5-12). High panoramic imagery is taken from higher altitudes with a smaller scan angle; generally the horizon is not visible on the image (see figures 5-13 and 5-14). This type of imagery can be useful when only

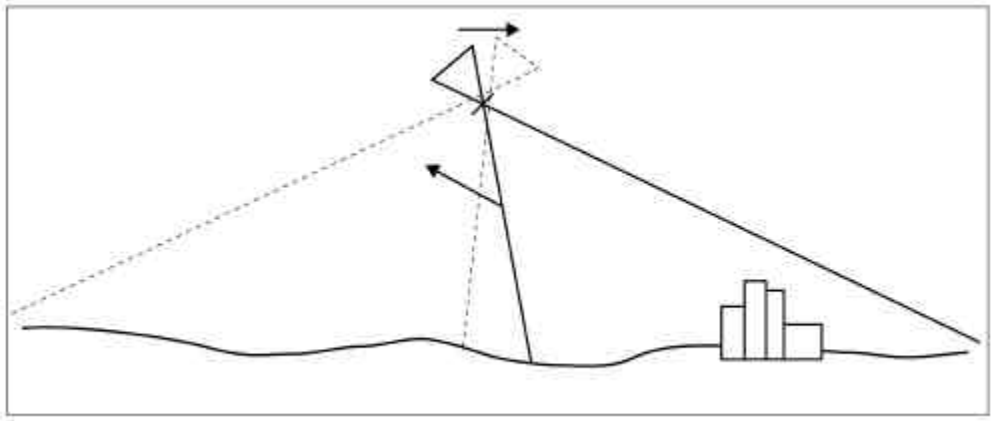


Figure 5-13. High Panoramic Imagery.

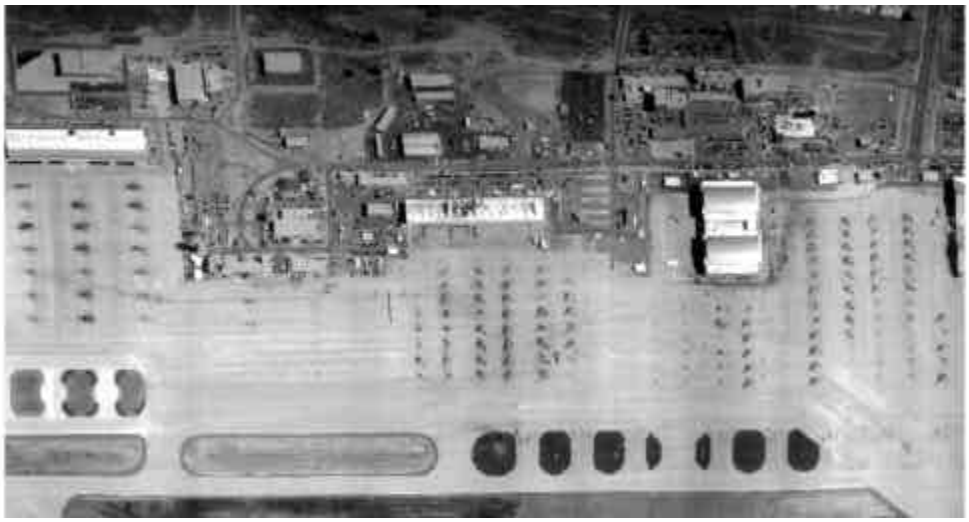


Figure 5-14. Panoramic Imagery Example.

one collection pass over the target area is possible as it provides coverage of large areas on both sides of the flight path. It is, however, more difficult and time-consuming to analyze and measure owing to the distortion of the recorded image.

Infrared Imagery. Infrared imagery is the remote sensing of a target's radiant temperatures. The system is used to measure the temperature differences between terrain features and surrounding objects on the ground, producing a near-optical quality infrared image (see figure 5-15).

These systems can operate during either day or night and under all weather conditions. However, they are less effective during day/night transition periods or when backgrounds and targets have the least difference in temperature. Also, infrared imagery uses temperature differential to generate the image so anything that degrades infrared transmission will impact the imagery.

Infrared imagery complements photographic imagery by day, and they are commonly used together. Unique infrared imagery capabilities include imaging the shadow on a heat-absorbing surface or the thermal scar of a heat-generating object (e.g., aircraft after it has moved).

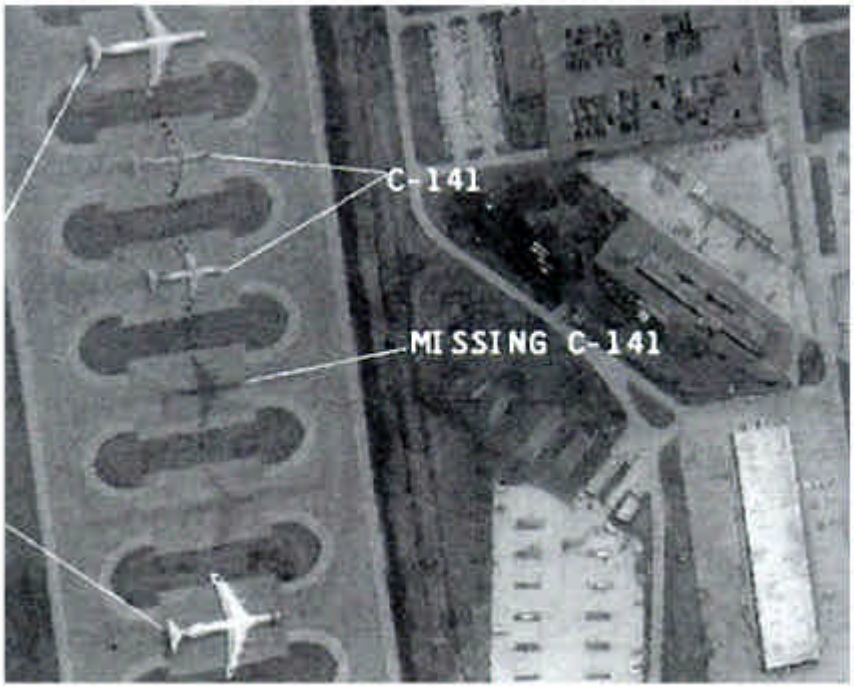


Figure 5-15. Infrared Imagery Example.

Radar Imagery. As a radar that can penetrate virtually all atmospheric conditions, radar imagery generally is limited only by the capability of the platforms conducting the collection mission. Radar operates on two principles: all materials reflect a portion of electromagnetic radiation; and electromagnetic energy is directed in a beam from the antenna to the target area. It is then reflected by the target back to the collecting platform. Variations in pattern and tone of the returned pulses are recorded and displayed as radar images. Figure 5-16 is an example of J-STARS SAR imagery. The geometry and surface composition of targets and their surroundings can greatly affect the intensity of the radar pulse return. To detect moving targets, radars employ the principle of doppler shift. Doppler shift is the result of a moving object causing a subtle change in the frequency of the reflected pulse energy. This change is detected by comparing the original pulse energy frequency to the frequency of the reflected energy. Advantages of radar imagery include its superb capabilities over great distances under a wide variety of conditions; it provides great operational flexibility, particularly during mid to higher intensity combat operations; and it

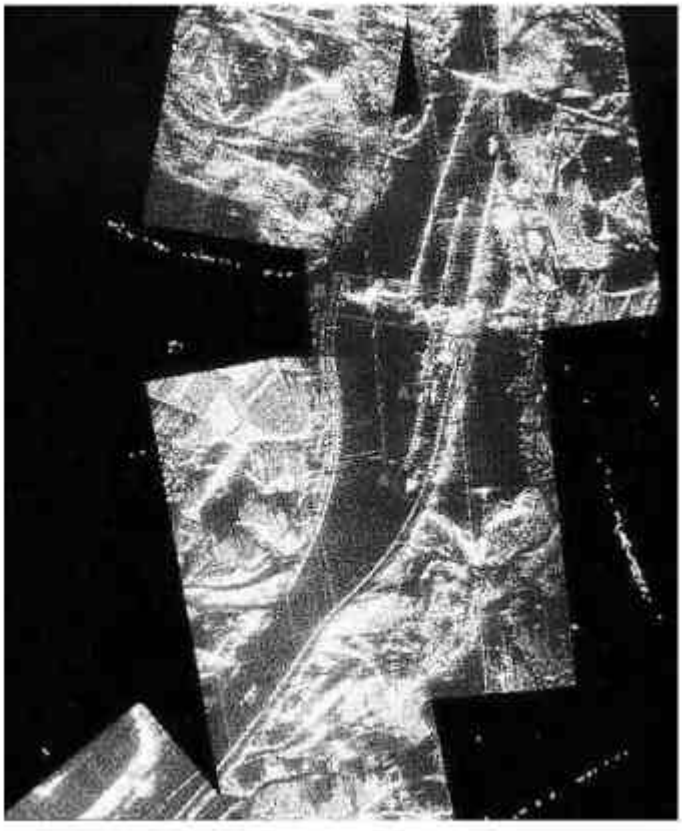


Figure 5-16. J-STARS Synthetic Aperature Radar Imagery Example.

provides constant scale. However, radar imagery is not useful as a stand-alone intelligence product. Unlike optical imagery, it presents an abnormal view of the battlespace, requiring special skills and time to analyze properly. (See figure 5-17 for an example of an MTI image.)

Electroptical imagery. EO imagery employs digital imaging techniques to extend and complement other imagery. Advantages include: the dynamic range of the sensor generally is greater than other types of imagery; it can penetrate atmospheric conditions that are opaque to other sensors; and, like radar imagery, EO imagery is readily exploitable by automated processors and analytical aids. EO uses the visual spectrum, so anything that impacts this (dust, smoke, haze, clouds, rain, fog, light level, angle of illumination, etc.) will affect the quality of the imagery.

Multispectral imagery. Multispectral imagery (MSI) records views in a number of spectral bands or frequencies simultaneously, providing a wider range of processing and analytical techniques to be employed. The key to interpretation lies in identifying the spectral signatures of different surfaces and targets. Every surface or target gives off its own distinctive pattern of radiation, whether it is generated by itself or reflected. This will depend on its reflective qualities, its heat, whether it is a solid or liquid, how smooth its surface is, and many other factors. MSI usually has less resolution in the visible spectrum but can reveal details not apparent on the latter. This allows MSI the capability of providing map-like products to support area

Figure 5-17. J-STARS Moving Target Indicator Imagery Example.

familiarization and orientation. Unlike other types of imagery, most MSI products are acquired from commercial sources. NIMA is responsible for purchasing, archiving, and disseminating MSI products for DOD.

Commercial Imagery. The commercial imagery industry is planning the launch of several new high resolution visible, MSI, and other imagery systems within the next 5 years. These systems will provide an increased capability to supplement and complement our national imagery technical collection. HQMC IPI works closely with NIMA on numerous commercial imagery issues. Marine Corps policies and procedures for requesting, tracking, obtaining, and purchasing commercial imagery are being developed and will be promulgated once NIMA's Commercial Imagery Management Office (CIMO) develops a commercial imagery plan to provide better DOD and intelligence community access to commercial imagery.

Domestic Imagery Collection. Domestic imagery collection is satellite and aerial imagery of any part of the U.S., its territories or its possessions, including the 12 nautical miles seaward of these land areas. A Proper Use Statement and approval are required before domestic imagery collection may be conducted. Central to this process is a thorough review of planned missions to ensure that the constitutional rights of U.S. persons are protected in accordance with current laws and executive orders that restrict intelligence activities directed against U.S. persons within the U.S. Once approval has been obtained, proper use statements must be retained in the permanent files of the requesting unit and higher headquarters up through the combatant command headquarters. Request channels for domestic imagery collection are:

See the NIMA Imagery Policy Series (section 9, part B), *Domestic Imagery* (IPS-001/98-S9A) for additional information on domestic imagery collection.

- **Marine Corps specific requirements**—proper use statements are submitted via the service chain of command to HQMC (IPI).
- **Joint operations requirements**—proper use statements are submitted via the operational chain of command to combatant commander for adjudication or follow-on action as appropriate.

Aerial Imagery Collection Missions

Preplanned Missions. Preplanned aerial imagery missions (UAVs, ATARS, J-STARS) are requested using the joint tactical air reconnaissance/surveillance request (JTAR/SR) format (see appendix C, section I). Within the MAGTF, preplanned aerial imagery requests are routed through the intelligence chain and consolidated by the MAGTF CE's intelligence section for validation, prioritization, and follow-on planning and coordination. Once a decision is made to conduct an aerial imagery collection mission, the G-2/S-2 concurrently will: refine the JTAR/SR as required and submit it to the G-3/S-3 for follow-on planning and integration within the MAGTF and/or JTF ATO; and, plan and coordinate supporting intelligence production and dissemination plans. Key planning information included on JTAR/SRs are—

It is emphasized that the same request and planning process is used not only for aerial imagery collection missions, but also for aerial electronic intellgence/electronic warfare support missions and aerial visual reconnaissance missions.

- Date-time factors: dates and time on targets desired; and latest time desired intelligence will be of value (LTIOV).
- Type intelligence collection mission.

- Target, route or area coordinates.
- Target categories and associated PIRs.
- Type intelligence products desired (i.e., reports and photos or reports only).
- Units to whom the resulting intelligence products will be disseminated.

The long lead time required for JTAR/SR submission needed by ACE operations planners is not often conducive to effective intelligence and IMINT planning. Therefore, effective standing operating procedures (SOPs) must be developed between G-2/S-2 and ATO planners to both meet air operations deadlines and strive to accommodate the intelligence planning aspects of rapidly changing situations. One method that may be used by intelligence planners is to initially provide ATO planners the most comprehensive JTAR/S request possible (i.e., specify desired aerial imagery platforms, type imagery mission, and anticipated targets and IRs). At a designated time (i.e., no later than 6 hours prior to mission start), imagery planners will provide ATO and imagery collection units with the final detailed intelligence tasking information for each mission-detailed target point/route/area location information, specific IRs, and final C2, reporting criteria and CIS channels to be used.

Immediate Missions. Immediate requests for aerial imagery collection may be submitted directly to the DASC. However, as available resources are generally limited and operating in general support of MAGTF requirements, approval from the mission's controlling intelligence officer must be obtained prior to diverting an aerial imagery platform from a preplanned mission.

The joint tactical air strike request format shown in appendix C, section II, may be used to request immediate aerial imagery collection support. If approved, the mission may be executed in one of the following ways:

- An ongoing mission can be diverted by its controlling authority to conduct the immediate mission.
- An on-call/standby mission may be allocated.

See JP 3-52, *Doctrine for Joint Airspace Control in the Combat Zone*, JP 3-56.1, *Command and Control for Joint Air Operations*, and MCWP 3-2, *Aviation Operations*, for additional infomation on the air tasking cycle and aviation planning. Additionally, the ATO format can be found in FMFRP 5-71, *MAGTF Aviation Planning Documents*.

Air Planning and the Air Tasking Cycle

- **Air Tasking Cycle.** Whether for preplanned or immediate air missions, the air tasking cycle is the key tool used by MAGTF planners to most effectively plan air operations to support mission accomplishment. It is an integral part of the MAGTF planning process. By using and completing the tasking cycle, planners can ensure that limited aviation assets are used to achieve their maximum effect with correct prioritization, C2 and CIS in support of the MAGTF's main and other key efforts. The principal planning product of the air tasking cycle is the MAGTF ATO or air plan. The six phases of the ATO cycle are command aviation guidance, target/air support mission development, allocation and allotment, tasking, force execution, and combat assessment (see figure 5-18).
- **The Air Tasking Order.** The ATO is a document generated by the JFACC or the ACE commander. It tasks and disseminates to JTF components, subordinate units, and C2 agencies the specific missions and targets of projected air sorties, capabilities, and forces. It normally

provides both general instructions and specific instructions, including call signs, targets, and controlling agencies. The airspace control order is included in the ATO. Special instructions, providing amplifying notes, important details, and changes are included in the ATO or issued separately. The ATO, airspace control order, and special instructions provide operational and tactical direction at appropriate levels of detail.

Each ATO covers a 24-hour period. There are usually three ATOs at any given time:

- The ATO in execution (today's plan), monitored by the ACE current operations staff.
- The ATO in production (tomorrow's plan).
- The ATO in planning (the following day's plan) by the ACE future operations planners.

Because input to the joint ATO must be provided 3 to 4 days in advance, the ATO can represent only a starting point for daily MAGTF flight operations. It is impractical to predict every need in advance. The MAGTF commander must have the flexibility to launch or to divert any aircraft as necessary to complete the mission, even if this requires short-notice deviations from the ATO.

In accordance with maneuver warfare, the ATO must be flexible enough to change with the needs of the force as the situation changes. It is not a rigid constraint on operational flexibility. Because the ATO represents a great deal of necessary coordination and deconfliction of air assets and airspace, however, necessary deviations from the ATO should be well-justified and relevant. Headquarters should be informed as quickly and as fully as possible. The process by which changes are made to the ATO is directed by the JFC.

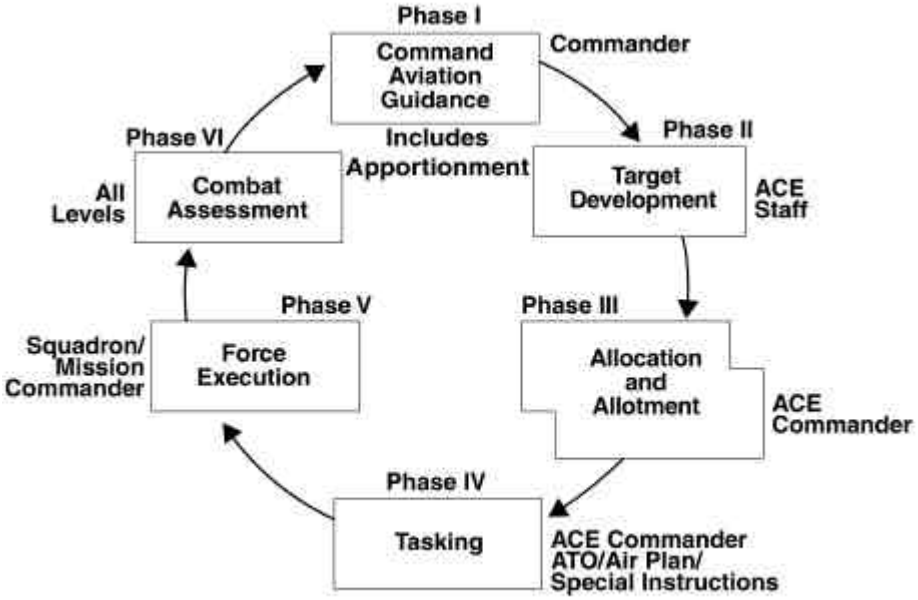


Figure 5-18. The Six-Phase Aviation Tasking Cycle.

During purely Navy/Marine Corps operations afloat, there may be no ATO as such. All squadron flight schedules are consolidated with the needs of the MAGTF/ship/amphibious ready group (ARG)/carrier battle group (CVBG) at an air board. The air board meets every day in the supporting arms coordination center (SACC). It works on current and future plans for air support. The results are published as the ship/ARG/CVBG air plan. The air board also provides the input for the joint ATO. Generally the MAGTF intelligence section will have a representative from its future plans section or intel bn's CMD section at all air board meetings to coordinate aerial imagery and other air intelligence mission needs.

Not every mission on squadron flight schedules and air plans will appear on the joint ATO. Flights that are within the MAGTF's airspace and made in support of the MAGTF—e.g., not in support of the JTF—may or may not be included in the joint ATO. Such flights are mostly helicopter flights and functional check flights. Such flights may include tactical missions generated to respond to the changing battlespace situations. Often, ships (particularly aircraft carriers) may operate outside of the JTF's airspace entirely. In such cases, missions that do not enter JTF airspace will not appear on the joint ATO. Nonetheless, every mission that is submitted and approved for the joint ATO must appear on squadron flight schedules and the MAGTF/ship/ARG/CVBG air plan.

Requesting JTF, Theater and National Imagery Support. Significant imagery and IMINT support is available to the MAGTF from external sources ranging from dissemination of existing imagery and products through the integration of existing information into new products and execution of new imagery collection and IMINT production. MAGTF IRs that cannot be satisfied via organic resources will be submitted to the next higher command echelon for validation, prioritization and, if possible, satisfying the request for intelligence or collection requirements through its organic resources before forwarding it to the next higher command echelon. The specific IR will determine how the requirement is identified and submitted. Techniques range from use of the standard request for information format, using the RMS resources and procedures (for new imagery collection requirements) or using COLISEUM resources and procedures (for IMINT or all-source production requirements). Figure 5-19 identifies the two different tracks external imagery and IMINT requirements may take.

Processing and Exploitation

Processing and exploitation involve the conversion of collected data into information that is suitable for the production of intelligence. Processing is largely a technical function that does not add meaning to the data, but instead is necessary to convert the data into a form that commanders and planners can understand (e.g., developing a piece of film into a usable image). Some types of data require minimal processing—they may be collected in a form that is already suitable for production. Other types of data require extensive processing to incorporate amplifying data not available on

the raw image products, affecting the timeliness and accuracy of the resulting information.

The degree of automated processing resident in IMINT resources varies. For example, the video downlink from a UAV can provide the geographical coordinates of acquired targets-but only to select C2 nodes. Likewise, the J-STARS CGS is capable of automatically processing, storing, and displaying acquired MTI, FTI and SAR imagery. Usually acquired imagery requires additional processing and exploitation before it is usable. This processing and exploitation of imagery data into IMINT is accomplished by the IIP or MCISU imagery analysts or by CGS personnel. They refine raw imagery into clear and usable imagery products by using manipulation tools available at their workstations (e.g., annotation of images, immediate identification of key pieces of threat equipment, measurement of a structure's dimensions). Situational factors and standing IRs will be assessed to determine to what degree such products may be immediately disseminated or whether additional intelligence analysis is required.

Production

Production is the activity that converts information into intelligence. It fuses new information and existing intelligence from all sources to provide meaningful knowledge that can be used for decisionmaking. Production involves the evaluation, interpretation, integration, analysis and synthesis of all information that is relevant to a particular IR to answer the question(s) that have been asked.

The results of exploited and analyzed imagery and imagery data form the basis for IMINT reports and derived products provided to the G-2/S-2 for the further analysis and production of all-source intelligence, directly to tactical commanders and to other users. User needs will rarely be fully satisfied simply via uninterpreted image prints. Instead, IMINT production planning and management will be closely coordinated with all-source intelligence

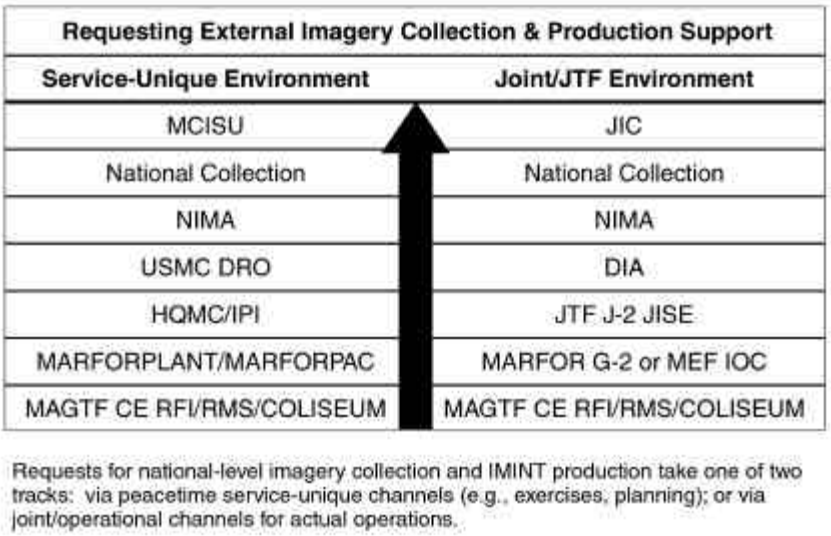


Figure 5-19. Requesting External Imagery and IMINT Support.

production management and planning to determine the scope, content, and format for each product; to plan and schedule the development of products; to assign priorities among the various IMINT product requirements; to determine who needs what products and in what quantities; to allocate IMINT processing, exploitation, and production resources; and to coordinate production efforts with IMINT and all-source collection and dissemination activities. The goal is effective and efficient use of limited resources while ensuring that IMINT production is focused on validated PIRs and IRs and associated specified intelligence reporting criteria.

IMINT production can range from the preparation of highly sophisticated multimedia products to the selection of suitable imagery forms for either stand-alone use or for integration and fusing within all-source intelligence products.

A wide variety of IMINT products may be developed, either as stand-alone single source products or as part of all-source intelligence products: annotated prints, mosaics, oblique panoramas and supporting detailed IMINT and all-source intelligence text reports.

Imagery Graphic Products

Imagery graphic products of objective areas (target areas, beaches, helicopter landing zones, etc.) are useful for a variety of planning and decisionmaking activities. Such products include—

- **Photographic prints.** A photographic print represents a single frame of imagery from a mission. Photographs often portray an idea more rapidly and concisely than words. For this reason, prints can provide a picture of significant items of interest to users in addition to any written reports. Prints will usually be annotated in some fashion to emphasize significant military information. Minimum annotations usually will be a titling strip, to include a grid reference or geographic coordinates for the illustrated target(s) and the date-time-group of the imagery, and a north arrow or other orientation aid to help with orienting the print to a map. Other annotations may include target categories and descriptions.
- **Mosaics.** A photographic mosaic is a combination of two or more overlapping prints that forms a single picture. Mosaics can be of significant value in providing an updated picture of a large area to supplement map data. Usually vertical photographs are used and produce “map-like” results, but oblique photographs may be used to produce a panorama. Mosaics supplement map data and text intelligence reports by displaying current information on roads, trails, built-up areas, and the conditions of terrain and vegetation.

IMINT Text Products

Commander’s timeliness requirements will drive the type and preparation of each of the below IMINT text products. (Appendix G provides the formats and instructions for the following IMINT reports).

- **Reconnaissance Exploitation Report (RECCEXREP)**—the RECCEXREP is used to report the results from the first rapid analysis of imagery, to include the debriefing of the aircrew when possible. It addresses those targets requested in the original imagery collection

mission tasking, normally with each target addressed separately. It is prepared by the IIP (with input from the supporting collecting unit's intelligence section) and disseminated in accordance with the dissemination plan. The specified time limit in which the RECCEXREP must be completed and disseminated will be per unit SOP.

- **Initial Photographic Interpretation Report (IPIR)**—the IPIR provides information on tasked imagery collection missions not previously reported (e.g., in the RECCEXREP) when extensive or detailed data from a systematic review of the imagery is required or if the rapid response required by the RECCEXREP would be hindered by the format, size or quality of the imagery involved. It also is prepared by the IIP (with input from the supporting collecting unit's intelligence section) and disseminated in accordance with the dissemination plan. The specified time limit in which the IPIR must be completed and disseminated will be per unit SOP.
- **Supplemental Photographic Interpretation Report (SUPIR)**—the SUPIR provides information not previously included in a RECCEXREP or IPIR. It reports on significant targets covered by the mission and other required supplemental data. It is prepared by the IIP (with input from the supporting collecting unit's intelligence section) and disseminated in accordance with the dissemination plan. Generally, the unit SOP specifies the time limit for completing and disseminating the SUPIR.
- **SALUTE Report**—the standard SALUTE (size, activity, location, unit, time, equipment) report is used to report any known or suspected enemy activity. It may also report any characteristics of the area of operations that affect mission accomplishment. The SALUTE report may be used by UAV squadron, ground reconnaissance, aircrew or other personnel to report key information obtained during ongoing imagery collection operations. It will be disseminated in accordance with the dissemination plan-generally from the collector to the SARC or directly from the collector to other supported units.

IMINT Support to Other All-Source Intelligence Products

See appendix H for detailed information regarding imagery and IMINT support to IPB and other all-source intelligence products.

Imagery alone will provide useful intelligence to commanders and planners.

Usually IRs will be satisfied more effectively and in greater detail via the complementary combination of an image and supporting IMINT or all-source intelligence products. Review appendix I for an appreciation of the greater intelligence value of a complementary imagery/intelligence report product, vice simply an image product.

Photogrammetry

Photogrammetry includes the precise measurement and computation required in imagery analysis. Measurements of objects/targets as they appear on imagery can be used to compute lengths, widths, heights, and imagery scale. Depending upon the IR, the photogrammetric process can be difficult and time-consuming. Vertical images are relatively straightforward and quick to measure, but oblique and panaoramic images will require greater effort, which can degrade timeliness requirements (particularly at tactical levels). Photogrammetry provides information on:

- Vehicle and equipment dimensions as an aid for identification and for technical analysis.
- Building, storage and other facilities, as well as installations' sizes and capacities.
- Bridges, roads, and other LOCs dimensions and compositions.
- Image scales.
- Speed and the direction of movement of targets and other objects.
- Targeting and weaponeering.

Target Analysis

Generally the imagery analyst's first responsibility is the detection and accurate identification of areas and activities for situation development and support to targeting.

Target detection begins with one of two search modes: general and specific. General search is undertaken in response to requests for broad area intelligence and usually involves the analytical examination of the entire image. Such searches should be kept to a minimum. Specific search is undertaken in response to an IR that requires point, strip or route reconnaissance imagery. Its scope and objectives are more limited than general search.

Target identification consists of the interpretation of visual cues or distinctive features of targets/objects detected during collection. The distinctive features are analyzed using the six Ss: size, shape, shadow, shade, surroundings, and signal strength. The depth and scope of the analysis is highly dependent upon the purpose of the analysis and the associated IR time constraints. Target identification may include—

- Determining the OOB and battle damage assessments of threat units and systems at different echelons.
- Identifying equipment and its use by threat forces.
- Determining the purpose and composition of ports, harbors, waterways, airfields, roadways, railways, and installations.
- Detecting and identifying non-threat forces and equipment and sensitive targets (e.g., religious facilities).

See appendix J for information on target folders and IMINT support to these.

Exploitation

Satisfying many IRs will require greater imagery exploitation. Such situations include functional analysis of an object, equipment or environmental analysis; previously unknown objects, equipment or modifications, and activities; unusual concentrations of military or non-military personnel or objects; etc.

National Imagery Interpretation Rating Scale

National imagery interpretation rating scale (NIIRS) is used by collection managers as an aid to the identification of the quality of imagery needed to satisfy their IRs. Additionally, imagery analysts use NIIRS to rate the

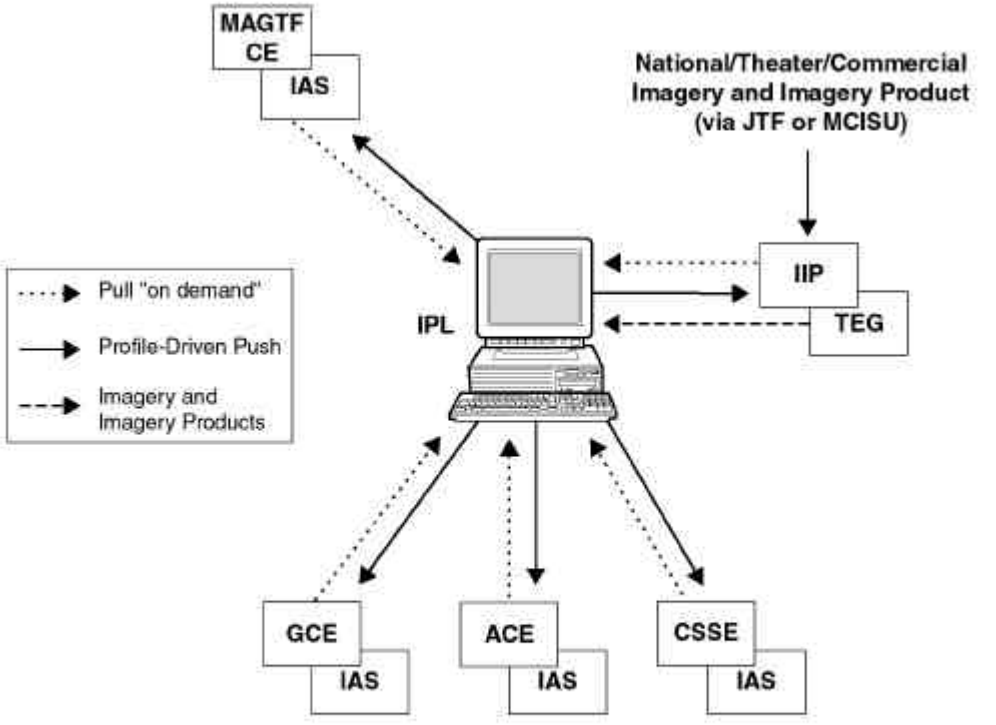
quality and interpretability of acquired imagery. (See appendix B for the visible, infrared, radar, multispectral, and civil NIIRS'.)

Imagery Data Bases

In addition to the development of these products, production also entails the indexing, maintenance and administration of imagery, and IMINT product data bases as an aid to future IMINT activities. Imagery analysts must ensure that acquired imagery is incorporated into the MAGTF IPL (see figure 5-20). Generally the IPL will include images in reduced resolution format reviewed by intelligence personnel and other users throughout the MAGTF. Those full-resolution images that meet their IRs can then be downloaded and disseminated.

Dissemination and Reporting

IMINT dissemination planning and management involves establishing dissemination priorities, stipulating dissemination and reporting criteria, selecting dissemination means, and monitoring the flow of IMINT reporting. The goal is to deliver IMINT products to the appropriate user in the proper form and at the right time, while concurrently preventing the dissemination of irrelevant products and avoiding information overload. The following paragraphs address the most common considerations for intelligence dissemination planners in developing IMINT dissemination plans.



Major Subordinate Commands (MSCs) down to the Regiment/Group level will have IPLs with which to store imagery and imagery products and access the Imagery Library Network. IPLs will be populated on the basis of demand-driven "pull" and user-developed profiles ("push").

Figure 5-20. MAGTF Image Product Library.

Identify Dissemination Requirements

When identifying requirements, the four Ws—the who, where, what, and when questions—are a good start for identifying the broad scope of dissemination needs. Direct and continuous communications with dissemination planners at each who is essential to precisely focus subsequent dissemination planning efforts.

The Whos. Commander preferences, standing theater OPLAN/concept plans (CONPLANs), type mission analyses, unit SOPs, TTPs, playbooks, and previous post-exercise analyses and lesson learned reports are all key sources for identifying organizations, units and other elements that the intelligence section must be capable of disseminating imagery and IMINT to. Identifying and grouping by common imagery and IMINT products requirements by typical command relationship/task organization provide the operational perspective to begin dissemination planning.

- **Internal MEF/MAGTF Headquarters**—current operations center, future operations center, tactical command echelon (when deployed), force fires coordination center, rear area operations center (when established), civil-military operations center (when established).
- **Subordinate Elements and Unit**—intelligence sections of the GCE, ACE and CSSE; other MAGTFs and independent task forces; organic/attached/direct support intelligence and reconnaissance units for whom the MEF retains operational control (via either the SARC, other G-2 sections, direct support teams, and/or direct to the intelligence/reconnaissance units' command posts); and other C2 nodes and facilities, when required (e.g., DASC, enemy prisoners of war compound, rear area operations center, airfield arrival control group).

The Wheres. Usually this will correspond to the location of each identified who. However, command relationships, the specific operational phase, task-organization or other factors may identify other answers to where dissemination requirements.

The Whats. With the above information in hand, dissemination planners now seek answers to the what of each requirement. Here planners strive to establish or anticipate what type intelligence support—finished intelligence, particular formats—each who typically requires to supporting its planning and decisionmaking needs. As with the who determinations, commander preferences, standing theater OPLAN/CONPLANs, type mission analyses, unit SOPs, TTPs, and playbooks, and previous post-exercise analyses and lesson learned reports all are key sources for isolating what needs and will provide the dissemination SOP foundation. Additionally, planners' research should encompass how differing intelligence resource task-organizations affect what requirements and to how the possible whats historically have

been combined to satisfy the who's requirements. Cross-referencing the who and what answers with the following groupings completes this step:

- Typical stand-alone imagery and IMINT products; and IMINT support to all-source intelligence products.
- Alarm intelligence support (e.g., I&W reports, time-sensitive target of opportunity reporting, etc.).
- Preferred level(s) of classified information that the who desires (further subdivided into what they require access to and what they can actually retain on-hand).

The Whens. The final dissemination planning information requirement is to determine each whos typical or stated whens. The same sources used to research the previous W s likewise are recommended for acquiring initial when answers and baseline planning criteria. However, this factor is arguably the most variable during tactical operations. Key planning considerations include—

- Nature of the requirement (e.g., is it a PIR or in support of another functional information requirement).
- Rapidly assessing the feasibility of satisfying the decisionmaker's or planner's stated LTIOVs (Is intelligence already on-hand? Can organic assets acquire or produce needed intelligence? Will external support be needed?).
- Communications and networks transmission requirements for the Who's desired format (voice, text, digital, bulk delivery, etc.)
- Capabilities and current status of the MAGTF CIS.

Develop Dissemination Plan

The answers to the four Ws can now be translated into an IMINT dissemination plan. IMINT personnel must maintain close coordination with all G-2/S-2 officers, G-3/S-3 planners, and pertinent intelligence personnel at higher, adjacent, supporting, and subordinate organizations.

Design and Coordinate Architecture. The architecture should be designed schematically so that it depicts organizations, type intelligence systems and CIS connectivity among the forces' (MAGTF, joint, naval) intelligence collectors/producers and the supported decisionmakers/planners. Since planned architectures must incorporate sufficient flexibility to adjust quickly to changing tactical circumstances, it must depict both primary and alternate pipeline and alarm channels and the demand-pull and supply-push methodologies.

The large data communications bandwidths associated with much imagery dissemination requires close planning and coordination between MAGTF

intelligence and CIS planners (see figure 5-21). Also, see appendix K for additional technical information on national imagery transmission format (NITF) compression that is useful when designing and coordinating CIS support to IMINT dissemination.

Establish IMINT Dissemination Procedures. Comprehensive, MAGTF-wide integrated operations/CIS/intelligence procedures are mandatory if intelligence dissemination is to be effective. Answers to the four Ws will provide the initial foundation for development of a MEF's intelligence dissemination architecture and operations. General dissemination procedures should be established for the delivery of IMINT and imagery from the controlling producers or agencies to designated recipients. The precedence of transmission—ranging from routine to flash—should be agreed upon by all involved parties in advance. Audiences should be predetermined as well by defining broadcast parameters (e.g., general or specific). Further, irrelevant intelligence can be better eliminated if reporting regimes, thresholds, and filters are identified early.

Allocate or Obtain Resources. The intelligence officer, in concert with the unit's CIS officer and G-3/S-3, should allocate available resources to accommodate dissemination of the requested IMINT. If resources do not exist to transmit the required information, a request for augmentation from higher headquarters or assistance from lateral units should be initiated immediately. Often it may be necessary to arrange for the delivery of intelligence directly from the producer to the requester if means are in place.

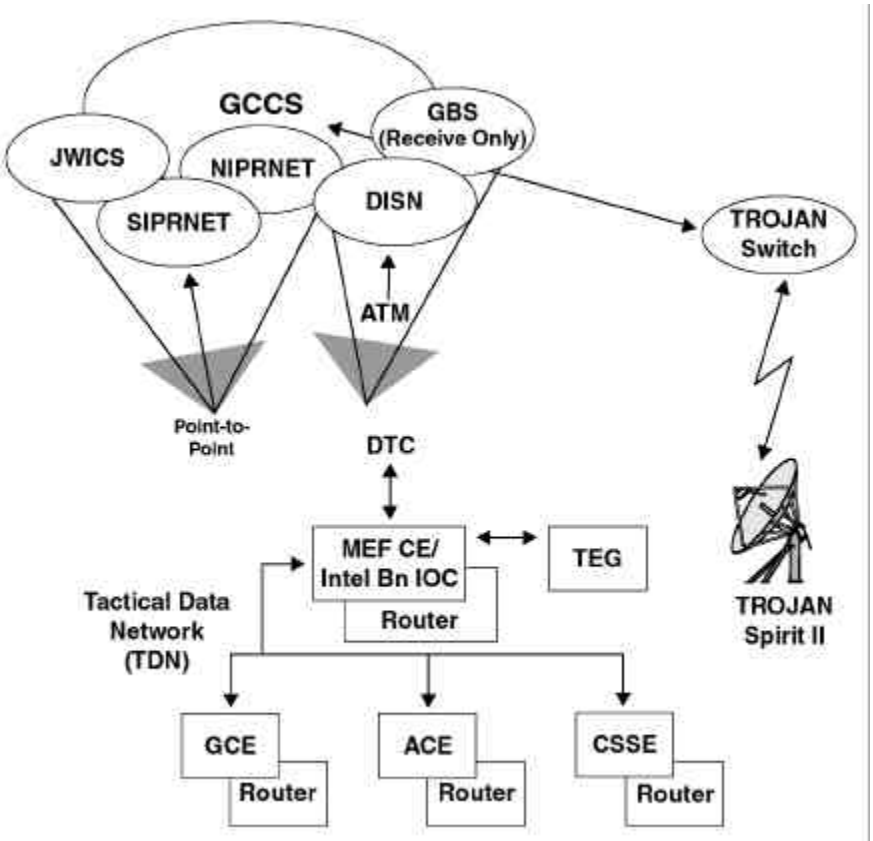


Figure 5-21. Key CIS Pathways for Imagery Dissemination.

Coordinate. Once IMINT requirements have been identified and the initial plans developed, planners will develop and coordinate detailed dissemination plans. Key considerations include—

- Close coordination among MAGTF CE IMINT, ACE intelligence, and imagery collection units' planners to ensure planned imagery collection missions, specific IRs, routes, and reporting criteria reflect ongoing developments.
- Close coordination between MAGTF CE IMINT planners and subordinate units' intelligence personnel to ensure that they are cognizant of planned imagery collection missions. In addition to voice and e-mail coordination, a useful technique for keeping everyone apprised of planned imagery missions is by including in MAGTF intelligence summaries a detailed paragraph describing specific planned imagery collection missions and associated priorities, collection times, targets, routes, IRs, and primary and alternate reporting channels.

Monitor Execution. Once imagery or IMINT products have begun to be disseminated to the requester, it is important to constantly evaluate the flow of information to determine if the user is satisfied with the quantity and quality of intelligence; and, to ensure that preplanned filters are eliminating circular reporting. Frequent checks with the requester can ensure intelligence utilization and preclude unanticipated demands on the G-2/S-2 staff.

IMINT Utilization

The specific utilization of IMINT is based upon the concept of operations and the imagery application being employed. Commanders, G-2/S-2s, and G-3/S-3s must continuously evaluate IMINT products and reports for timeliness, usefulness, overall quality and responsiveness to stated PIRs and IRs, and provide feedback to the MAGTF G-2/S-2 and IMINT planners to improve future IMINT operations. Ultimately, IMINT utilization will provide guidance and determine requirements to support ongoing IR management and supporting IMINT operations.

5007. PLANS AND ORDERS

Guidance for the conduct of IMINT operations comes from many sources. DIA and NIMA issue policies, direction, guidance, and instructions on compliance with national IMINT standards, architectures, and request procedures.

General

Additionally, since MAGTFs will normally be part of a JTF or naval expeditionary force, reference to pertinent combatant, joint force, and fleet commanders' orders, guidance, and IMINT TTPs are necessary to identify unique operating concepts, methodologies, support procedures, and formats. Marine IMINT plans and orders are prepared by the G-2/S-2 (under the staff lead of the ISC and with the assistance of the other G-2 section and intel bn staff officers and commanders) and the COs/OICs of the supporting IMINT units. MAGTF IMINT plans and orders appear as appendix 7 to the intelligence annex of the MAGTF operation plan or order and will focus on internal MAGTF IMINT requirements, operations, and TTP.

Operations Order or Plan

IMINT Operations Appendix

Appendix 7 (Imagery Intelligence) to annex B (Intelligence) to an OPLAN or OPORD will provide detailed planning and direction for the conduct of MAGTF IMINT operations. The ISC is responsible for its development. It will be prepared consistent with format outlined in the JOPES, tailored as necessary consistent with the situation and the MAGTF's needs. (See appendix L for a sample IMINT operations appendix format.) The IMINT operations appendix should include—

- Friendly IMINT forces to be used, including—
  - Personnel augmentation requirements.
  - IMINT units of adjacent or other theater forces and support expected.
  - Joint force maritime component commander (JFMCC), naval task force and/or amphibious task force IMINT elements that provide support to the LF in amphibious operations,.
- Pertinent IMINT capabilities and support from the JTF headquarters, combatant command's joint intelligence center/joint analysis center, and other component commanders/task forces within JTF operations,.
- Planned arrangement and employment of external IMINT support, including special collection, production, dissemination, and CIS.
- Establishment of coordinating instructions for the planning and control of IMINT operations to include the technical support expected from higher headquarters.
- Tasking of MAGTF IMINT elements.
- IMINT production, priorities, and plans.
- IMINT dissemination priorities and plans, to include CIS support to the MAGTF IMINT effort.
- IMINT unique equipment and logistics requirements.

IMINT Plans within Other Portions of Annex B

In addition to appendix 7, there are other portions of annex B that IMINT provides critical contributions or that provide critical operational and intelligence integration plans pertinent to IMINT operations. These include

- **Appendix 11, Intelligence Estimate.** Once a basic understanding of the mission, area of operations, threat and other pertinent matters is known, it is necessary to view the situation through the adversary's eyes and provide this intelligence assessment to all MAGTF commanders and planners. The intelligence estimate is the principal comprehensive intelligence product that does this. The intelligence estimate seeks to accomplish a number of critical tasks: to state conditions of the area of operations that exist and indicate the effect of these conditions on enemy capabilities and the assigned mission, and assess the estimated effects of these conditions on both enemy and friendly capabilities and operations; to provide basic and current intelligence on threat forces compositions, organizations, strengths, dispositions, locations, activities, C2, logistics, and equipment; to provide an assessment of each enemy capability (attack, defend, delay, reinforce, withdraw), to include strengths and vulnerabilities, indicators that point to possible adoption of the capability, and estimates of the effects the enemy's adoption of each capability will

have on the accomplishment of the MAGTF's mission; and, finally, intelligence conclusions of the likelihood of each capability being adopted by the enemy (generally listed from the most to least probable) and its associated center of gravity and vulnerabilities and estimated exploitability of these by the MAGTF. The intelligence estimate is an all-source intelligence product that will contain substantial input from IMINT and usually supported by extensive imagery. Additionally, it is where the following intelligence studies will be found, each requiring substantial IMINT and imagery support:

- Tab A, Tactical Study of Terrain
- Tab B, Beach Studies
- Tab D, Airfield Studies
- Tab E, HLZs, and Drop Zones Studies
- Tab F, Port Studies
- Tab G, Lines of Communications Studies
- Tab H, Order of Battle Study
- Tab I, Survival, Evasion, Resistance, and Escape Safe Areas

- **Appendix 14 (Reconnaissance and Surveillance Plan).** The reconnaissance and surveillance (R&S) plan is a key tool developed to coordinate and integrate MAGTF R&S operations. Specifically, it provides guidance and orders for establishing and conducting ground reconnaissance, aerial reconnaissance, UAV operations, and remote sensor operations. The R&S plan will generally be developed by the SARC OIC, under the supervision of the intel bn commander/ISC and the CMDO, with the assistance of senior IMINT and R&S planners from force reconnaissance company, UAV squadron, and the ground sensor platoon (GSP). In particular, the following two tabs to the R&S plan appendix require extensive support from IMINT planners:

The intelligence estimate and supporting studies will be updated periodically (or new ones developed) throughout an operation, generally through all-source intelligence reports and summaries (again, each will usually have substantial input from IMINT and supporting imagery). The intel bn commander/ISC, through the commander's P&A cell OIC, is responsible for the analysis underlying and preparation of the intelligence estimate and subsequent reports.

- **Tab C, Unmanned Aerial Vehicle Plan.** This tab provides detailed intelligence orders, guidance and instructions for MAGTF UAV operations. Responsibility for its development rests with the SARC OIC, assisted by UAV squadron and imagery planners. Its specific content and formats will be mission and situation dependent. It will include information on UAV sortie routine and surge capabilities; preplanned point, route, strip and area reconnaissance missions; UAV squadron C2 nodes locations; allocation and capabilities of squadron elements (e.g., RRS team assignments and missions); and other similar information. Although it may include tentative planning information on specific PIRs and IRs supported as well as type imagery desired, usually this information will be too perishable; instead, when developed it will be incorporated in subsequent specific intelligence mission orders. (See appendix M for a recommended format for a MAGTF UAV plan.)
- **Tab D, Aerial Imagery Plan.** This tab provides detailed intelligence orders, guidance and instructions for the conduct of MAGTF aerial imagery operations. Responsibility for its development rests with the SARC OIC, assisted by imagery planners. Its specific content and formats will be mission and situation dependent. Generally it will include information on ACE imagery capable aircraft and systems capabilities and sortie routine and surge capabilities; preplanned point, route, strip and area reconnaissance missions; key C2 nodes locations; allocation and capabilities of squadron elements; and other similar information. Although it may include tentative planning information on specific PIRs and IRs supported as well as type imagery desired, usually this informa-

tion will be too perishable. When developed it will be incorporated in subsequent specific intelligence mission orders. (See appendix N for a recommended format for a MAGTF aerial imagery plan.)

- **Appendix 16 (Intelligence Operations Plan).** This appendix may be developed depending upon the complexity and scope of MAGTF operations and supporting intelligence operations (to include IMINT). It will provide additional guidance not already covered in SOPs for planning and direction of all-source intelligence and CI operations; and for intelligence C2, C2 nodes and facilities, and supporting CIS. It will also identify priority and unique requirements and procedures for the integration of MAGTF intelligence operations with MAGTF C2, maneuver, fires, logistics, and force protection operations; and the integration and interoperability of MAGTF intelligence operations with naval, JTF, theater, national and non-U.S. intelligence operations. The following separate tabs may be included:
- **Tab A, Intelligence Collections Plan.** Provide guidance for executing and managing collection activities not otherwise covered by regulation or SOP, including reconnaissance operations, equipment status, reports, unique intelligence disciplines requirements, and other specialized forms of collection activity to support the plan. Provide guidance on both routine and time-sensitive reporting of collected intelligence information by all collection sources to be employed in support of the plan.
- **Tab B, Intelligence Production Plan.** Identify the intelligence production objectives and effort, including any intelligence and CI products, required to support the OPLAN. Include details of management of intelligence production requirements along with guidance on intelligence production and data bases, forms/formats for intelligence products, production schedules, intelligence products and reports distribution, etc. Include as appropriate requirements and guidance for the following: I&W, support to targeting, combat assessment (to include BDAs), and force protection.
- **Tab C, Intelligence Dissemination Plan.** Stipulate the requirements, means and formats for disseminating intelligence reports and products (e.g., units responsible for each, periods covered, distribution, timelines standards). Establish the supporting intelligence communications and information systems plan and the supporting procedures and criteria to satisfy expanded requirements for vertical and lateral dissemination of routine and time-sensitive intelligence products and reports. Address voice, network, courier, briefings, and other communications methods, to include point-to-point and alarm methods. Establish alternate means to ensure that required intelligence will be provided to subordinate and supported units. Provide guidance regarding intelligence and information security, to include the dissemination of sensitive compartmented information within the force and the releasibility of intelligence to non-U.S. forces.
- **Tab D, Intelligence Communications and Information Systems Plan.** Provide any specific instruction necessary regarding the establishment, operation, and maintenance of intelligence and pertinent supporting CIS resources and data bases, to include those dedicated to intelligence operations as well as multipurpose MAGTF CIS resources used for intelligence purposes. *Note: This tab may be consolidated with Tab C.*
- **Tab E, Intelligence Reports.** Provide any instructions necessary regarding intelligence reports, both all-source and single discipline.

- **Appendix 17 (Support to Survival, Evasion, Resistance, and Escape.** The support to survival, evasion, resistance and escape (SERE) appendix provides guidance, procedures, intelligence products and orders for intelligence support to MAGTF SERE preparations and operations. A variety of intelligence products are developed to support MAGTF SERE readiness. Together with Tab I (Survival, Evasion, Resistance, and Escape Safe Areas) to Appendix 11 (Intelligence Estimate) these constitute the standard SERE support products. The P&A cell OIC is responsible for preparing these products. IMINT and, critically, imagery provide key support to each SERE support intelligence product. These include:
  - SERE guides and bulletins. They provide basic information to help an individual survive, successfully evade and, if captured, resist enemy interrogations. The guidelines and bulletins cover an entire country or region and provide information on topography, hydrography, food and water sources, safe and dangerous plants and animals, customs and cultures, recognition of hostile forces, resistance techniques, and other types of information.
  - Select areas for evasion (SAFE) area intelligence descriptions (SAID). SAIDs provide essential intelligence concerning specific SAFEs to assist evasion and resistance planners and potential evaders in planning and conducting recovery operations.
  - Evasion and resistance (E&R) studies. E&R studies are similar to SAIDs. They differ in that not all conventional selection criteria for SAFE areas can be met because of current political, military or environmental factors prevailing within the area.